

WHAT IS CLAIMED IS:

1. A method of inserting an implantable cardioverter-defibrillator within a patient, the method comprising the steps of:

5 providing a cardioverter-defibrillator canister having at least a portion of the cardioverter-defibrillator canister being non planar to maintain the cardioverter-defibrillator canister in a predetermined relationship with respect to a patient's heart, subcutaneously over a patient's ribcage;

making a single incision into the patient; and

advancing the cardioverter-defibrillator canister through the single incision and subcutaneously over the patient's ribcage.

2. Wherein the canister has a length of less than 30 centimeters.

3. The method of claim 2, wherein the cardioverter-defibrillator canister has a length of approximately 3  
20 centimeters to approximately 30 centimeters.

4. The method of claim 2, wherein the cardioverter-defibrillator canister has a length of approximately 5 centimeters to approximately 20 centimeters.

5 5. The method of claim 2, wherein the cardioverter-defibrillator canister has a length of approximately 5 centimeters to approximately 12 centimeters.

6. The method of claim 1, wherein the cardioverter-defibrillator canister has a width of approximately 3 centimeters to approximately 10 centimeters.

7. The method of claim 1, wherein the cardioverter-defibrillator canister has a width of approximately 3 centimeters to approximately 6 centimeters.

8. The method of claim 1, wherein the cardioverter-defibrillator canister has a depth that is less than approximately 15 millimeters.

9. The method of claim 1, wherein the cardioverter-defibrillator canister further comprises a first end and a second end.

5 10. The method of claim 9, wherein the width of the cardioverter-defibrillator canister between the first end and the second end are substantially similar.

11. The method of claim 1, wherein a length of the cardioverter-defibrillator canister is greater than a width of the cardioverter-defibrillator canister.

12. The method of claim 1, wherein the length of the cardioverter-defibrillator canister is substantially similar to the width of the cardioverter-defibrillator canister

13. The method of claim 9, wherein the first end of the cardioverter-defibrillator canister is rounded.

14. The method of claim 13, wherein the second end of the  
20 cardioverter-defibrillator canister is substantially square.

15. The method of claim 13, wherein the second end of the cardioverter-defibrillator canister is rounded.

16. The method of claim 9, wherein the width of the  
5 cardioverter-defibrillator canister tapers inwardly between the second end of the cardioverter-defibrillator canister and the first end of the cardioverter-defibrillator canister.

17. The method of claim 9, wherein the depth of the  
cardioverter-defibrillator canister decreases from the second end of the cardioverter-defibrillator canister to the first end of the cardioverter-defibrillator canister.

18. The method of claim 1, wherein the cardioverter-defibrillator canister further comprises an electrode located on a portion of the cardioverter-defibrillator canister.

19. The method of claim 18, wherein the electrode can emit a shocking energy.

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20. The method of claim 1, wherein at least a portion of the cardioverter-defibrillator canister comprises an electrically insulated material.

5 21. The method of claim 1, wherein the single incision is made approximately at the level of the cardiac apex.

22. The method of claim 1 wherein the single incision is made approximately in the left anterior axillary line.

23. The method of claim 1, further comprising the step of shaping a passageway within the patient for the cardioverter-defibrillator canister to navigate.

24. The method of claim 1, wherein the cardioverter-defibrillator canister is advanced proximate the patient's heart.

25. The method of claim 1, wherein the cardioverter-defibrillator canister is advanced medially along approximately a patient's left inframmary crease.

26. The method of claim 1, wherein the cardioverter-defibrillator canister is advanced toward a patient's sternum.

27. The method of claim 1, wherein the cardioverter-  
5 defibrillator canister is advanced approximately between a patient's third and a patient's twelfth rib.

28. The method of claim 1, wherein the cardioverter-defibrillator canister refrains from directly contacting the patient's heart.

29. The method of claim 1, wherein the cardioverter-defibrillator canister refrains from directly contacting a patient's intrathoracic vasculature.

30. The method of claim 1, further comprising the step of orienting the length of the cardioverter-defibrillator canister along the length of the ribs in the ribcage.

31. The method of claim 1, further comprising the step of  
20 orienting the length of the cardioverter-defibrillator canister perpendicularly to the length of the ribs in the ribcage.

32. A method of inserting an implantable cardioverter-defibrillator within a patient, the method comprising the steps of:

providing the implantable cardioverter-defibrillator  
5 comprising a housing and an electrode located on the housing,  
wherein the implantable cardioverter-defibrillator is configured  
to provide a shocking energy to a patient's heart by the  
electrode;

making a single incision into the patient; and

advancing the implantable cardioverter-defibrillator  
through the single incision and subcutaneously over  
approximately a patient's third rib and approximately a  
patient's twelfth rib.

33. The method of claim 32, wherein the cardioverter-defibrillator has a length of less than 30 centimeters.

34. The method of claim 32, wherein the cardioverter-defibrillator has a length of approximately 3 centimeters to  
20 approximately 30 centimeters.

35. The method of claim 32, wherein the cardioverter-defibrillator canister has a length of approximately 5 centimeters to approximately 20 centimeters.

5 36. The method of claim 32, wherein the cardioverter-defibrillator has a length of approximately 5 centimeters to approximately 12 centimeters.

37. The method of claim 32, wherein the cardioverter-defibrillator has a width of approximately 3 centimeters to approximately 10 centimeters.

38. The method of claim 32, wherein the cardioverter-defibrillator has a width of approximately 3 centimeters to approximately 6 centimeters.

39. The method of claim 32, wherein the cardioverter-defibrillator has a depth that is less than approximately 15 millimeters.

40. The method of claim 32, wherein the cardioverter-defibrillator further comprises a first end and a second end.



41. The method of claim 40, wherein the width of the cardioverter-defibrillator between the first end and the second end are substantially similar.

5 42. The method of claim 32, wherein a length of the cardioverter-defibrillator is greater than a width of the cardioverter-defibrillator.

43. The method of claim 32, wherein the length of the cardioverter-defibrillator is substantially similar to the width of the cardioverter-defibrillator.

44. The method of claim 40, wherein the first end of the cardioverter-defibrillator is rounded.

45. The method of claim 44, wherein the second end of the cardioverter-defibrillator is substantially square.

46. The method of claim 44, wherein the second end of the  
20 cardioverter-defibrillator is rounded.

47. The method of claim 40, wherein the width of the cardioverter-defibrillator tapers inwardly between the second end of the cardioverter-defibrillator and the first end of the cardioverter-defibrillator.

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48. The method of claim 40, wherein the depth of the cardioverter-defibrillator decreases from the second end of the cardioverter-defibrillator to the first end of the cardioverter-defibrillator.

49. The method of claim 32, wherein at least a portion of the cardioverter-defibrillator is substantially non planar.

50. The method of claim 32, wherein the cardioverter-defibrillator further comprises an electric circuit located in a portion of the cardioverter-defibrillator.

51. The method of claim 50, wherein the electric circuit may provide multiphasic cardiac pacing.

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52. The method of claim 32, wherein at least a portion of the cardioverter-defibrillator comprises an electrically insulated material.

5 53. The method of claim 32, wherein the single incision is made approximately at the level of the cardiac apex.

54. The method of claim 32, wherein the single incision is made approximately in the left anterior axillary line.

55. The method of claim 32, further comprising the step of shaping a passageway within the patient for the cardioverter-defibrillator to navigate.

56. The method of claim 32, wherein the cardioverter-defibrillator is advanced proximate the patient's heart.

57. The method of claim 32, wherein the cardioverter-defibrillator is advanced medially toward approximately a patient's left inframmary crease.

20 58. The method of claim 32, wherein the cardioverter-defibrillator is advanced proximate a patient's sternum.

59. The method of claim 32, wherein the cardioverter-defibrillator refrains from directly contacting the patient's heart.

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60. The method of claim 32, wherein the cardioverter-defibrillator refrains from directly contacting a patient's intrathoracic vasculature.

61. The method of claim 32, further comprising the step of orienting the length of the cardioverter-defibrillator along the length of the ribs in the ribcage.

62. The method of claim 32, further comprising the step of orienting the length of the cardioverter-defibrillator perpendicularly to the length of the ribs in the ribcage.

63. A method of inserting an implantable cardioverter-defibrillator within a patient, the method comprising the steps of:

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providing a cardioverter-defibrillator comprising a housing, an electrical circuit located within the housing, and

an electrode located on the housing, wherein the cardioverter-defibrillator is configured to maintain the electrode in a predetermined relationship subcutaneously over a patient's ribcage;

5           making a single incision into the patient; and  
          advancing the cardioverter-defibrillator through the single incision and subcutaneously over the patient's ribcage.

64. The method of claim 63, wherein the housing has a  
10           length of less than 30 centimeters.

65. The method of claim 64, wherein the housing has a  
15           length of approximately 3 centimeters to approximately 30 centimeters.

66. The method of claim 64, wherein the housing has a  
20           length of approximately 5 centimeters to approximately 20 centimeters.

67. The method of claim 64, wherein the housing has a  
25           length of approximately 5 centimeters to approximately 12 centimeters.

68. The method of claim 63, wherein the housing has a width of approximately 3 centimeters to approximately 10 centimeters.

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69. The method of claim 63, wherein the housing has a width of approximately 3 centimeters to approximately 6 centimeters.

70. The method of claim 63, wherein the housing has a depth that is less than approximately 15 millimeters.

71. The method of claim 63, wherein the housing further comprises a first end and a second end.

72. The method of claim 71, wherein the width of the housing between the first end and the second end are substantially similar.

73. The method of claim 63, wherein a length of the housing is greater than a width of the housing.

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74. The method of claim 63, wherein the length of the housing is substantially similar to the width of the housing.

75. The method of claim 71, wherein the first end of the  
5 housing is rounded.

76. The method of claim 75, wherein the second end of the housing is substantially square.

77. The method of claim 75, wherein the second end of the housing is rounded.

78. The method of claim 71, wherein the width of the housing tapers inwardly between the second end of the housing and the first end of the housing.

79. The method of claim 71, wherein the depth of the housing decreases from the second end of the housing to the first end of the housing.

80. The method of claim 63, wherein at least a portion of the housing is substantially non planar.

81. The method of claim 71, wherein the electrode is located on a portion of the first end of the housing.

5 82. The method of claim 81, further comprising a second electrode being electrically coupled to the electrical circuit within the housing.

83. The method of claim 82, wherein the second electrode is located upon a portion of the second end of the housing.

84. The method of claim 63, wherein at least a portion of the housing comprises an electrically insulated material.

85. The method of claim 63, wherein the single incision is made approximately at the level of the cardiac apex.

86. The method of claim 63, wherein the single incision is made approximately in the left anterior axillary line.

20 87. The method of claim 63, further comprising the step of shaping a passageway within the patient for the cardioverter-defibrillator to navigate.



88. The method of claim 63, wherein the cardioverter-defibrillator is advanced proximate the patient's heart.

5 89. The method of claim 63, wherein the cardioverter-defibrillator is advanced medially toward approximately a patient's left inframmary crease.

10 90. The method of claim 63, wherein the cardioverter-defibrillator is advanced proximate a patient's sternum.

15 91. The method of claim 63, wherein the cardioverter-defibrillator is advanced approximately between a patient's third and a patient's twelfth rib.

20 92. The method of claim 63, wherein the cardioverter-defibrillator refrains from directly contacting the patient's heart.

25 93. The method of claim 63, wherein the cardioverter-defibrillator refrains from directly contacting a patient's intrathoracic vasculature.

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